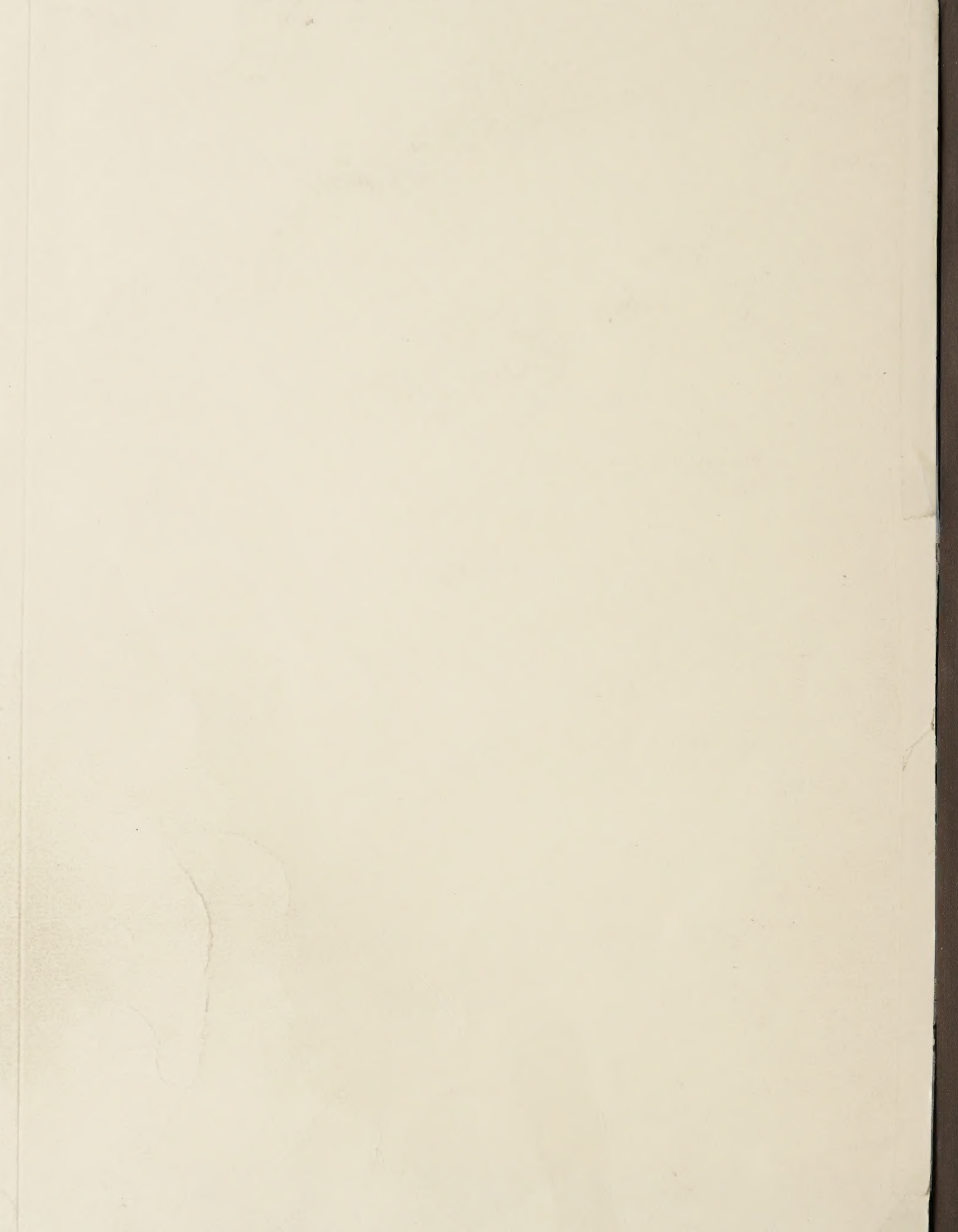


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UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

INDIVIDUAL TRAINING PROGRAM
FOR
FOREIGN TRAINEES
(Revised 1946)

F I E L D T R A I N I N G

Trainees will be assigned to a field location or work unit for the second period of their training. It will last about six months. The over-all objective at the work unit is to develop, through study and actual work, the trainee's ability to organize and carry out--and to impart this knowledge to others in his home country--as complete program of soil and moisture conservation and proper land use as time permits.

Training here covers various problems, each one more or less interwoven with the others. The order in which these problems are attacked is not fixed--crop or local conditions will determine this order. The supervisor, or work unit leader, will work this out to the best advantage.

You trainees please remember one important item--Ask questions and more questions. The men you work with will gladly try to answer any and all of them. And please remember that the men with whom you are working and living will ask you many questions about your country. Many of these may sound insignificant to you. But please be patient, as many of our people have not visited your country. The North Americans will learn much from you, as well as you from us.

An outline of the problems follows. The training jobs or steps included in this outline are by no means considered complete; however, in most work units they will form a training pattern.

*

PROBLEM I: Acquainting the trainee with his location, his community, and his work

A. Objective and scope of training

1. To make the trainee feel at home in the office, community, and field. This will not be accomplished in any given period, but will run concurrently with all of his activities from the time he reports for duty until he leaves the location.
2. To aid the trainee in making the necessary adjustments so that he may lead a full and satisfying life, socially, economically, religiously, and professionally while in the United States. First things should be first, such as housing, food, clothing, and office space in the order in which the needs of the particular trainee occur.
3. To acquaint the trainee with the functions of the Service in relation to the land itself. The functions at the Washington, Regional and State levels should tie in as they relate to this primary objective.
4. To develop the understanding of the trainee in the field operations of the various agricultural organizations in the country as they relate to the Soil Conservation Service and the work at hand. It will not be necessary for him to learn in detail all the functions of each bureau, but only the major ones. Associating these major functions with the people connected with the various agencies, together with the accumulation of incidental contacts during the entire training period will be most effective.

| Jobs or Steps in Training | Training | |
|--|----------|---------|
| | Rec'd | Remarks |
| 1. In the office | : | : |
| a. Learn the organization and functions of the various offices of the USDA and the SCS at regional, state, district and work unit levels | : | : |
| b. Associate people met in work unit, district, state, region, and elsewhere with the chart | : | : |
| 2. In the community | : | : |
| a. Study map of the region, the state, and the district so as to become oriented in the location | : | : |
| b. Meet and work with farmers | : | : |
| 3. Devices and references | : | : |
| a. Soil conservation Act of Congress April 27, 1935 | : | : |
| b. Maps - charts | : | : |
| c. District Plans | : | : |
| d. Miscellaneous Publication 596 "Our American Land" | : | : |
| e. Miscellaneous Publication 60 "List of Publications of the Department of Agriculture" | : | : |
| f. Miscellaneous Publication 446 "List of Publications of the Soil Conservation Service" | : | : |

PROBLEM II: To make a conservation survey and land capability table

A. Objective

1. To develop in the trainee the ability to prepare a conservation **survey and to know** the principle of land capability table development and its use.

B. Scope of training

1. It is doubtful that the entire objective can be realized, as has been set up in this problem. The length of this training period will not be sufficient to make a man a master of each and every operation involved. It should be possible for the trainee to receive sufficient basic information in one month's training in conservation-survey work. In the balance of the training this information will be continually enlarged.

| Jobs or Steps in Training | Training | |
|--|----------|---------|
| | Rec'd | Remarks |
| 1. Developing and using a conservation survey | : | : |
| a. Training activities | : | : |
| 1) Study physical factors in the field and the method of recording them on the survey | : | : |
| 2) Learn to recognize conservation needs of the soil from data and observation study | : | : |
| b. Devices and references | : | : |
| 1) Conservation survey of the area for field observation | : | : |
| 2) Soil descriptions | : | : |
| 3) Soil mapping symbols | : | : |
| 2. Mapping soil, slope, erosion and cover | : | : |
| a. Training activities | : | : |
| 1) How to read and interpret an aerial photograph | : | : |
| 2) Observe experienced surveyor at work (Surveyor to explain how and why each determination is made) | : | : |
| 3) Study references | : | : |
| 4) Practice mapping under guidance of experienced surveyor | : | : |
| 5) Match aerial photographs | : | : |
| 6) Practice lettering | : | : |
| 7) Ink maps | : | : |
| 3. Learning the principles of land capability table development | : | : |
| a. Training activities | : | : |
| 1) Study how to interpret conservation surveys | : | : |
| 2) Study how to identify the 8 land classes | : | : |
| a) Determine physical factors which characterize each land use capability class | : | : |

| Jobs or Steps in Training | Training | |
|---|----------|---------|
| | Rec'd | Remarks |
| 3. (Cont'd) | : | : |
| | : | : |
| b) Relationship of intensity of land use in certain regions (dry farming, irrigated farming, etc.) to the classification and required conservation practices to maintain soils under these conditions | : | : |
| | : | : |
| 3) Study local land capability table in office | : | : |
| 4) Study in field areas previously mapped | : | : |
| 5) Determine land capability classes during field mapping work and practices necessary to maintain the land | : | : |
| 6) Color land capability map | : | : |
| | : | : |
| b. References and devices | : | : |
| | : | : |
| 1) Local land capability table | : | : |
| 2) Farmers' Bulletin 1853 | : | : |
| 3) Soil Survey Manual - Miscellaneous Publication 352 | : | : |
| | : | : |
| | : | : |

PROBLEM III: The establishment and maintenance of soil and water conservation practices

A. Objectives and scope of training

1. To develop the ability to establish and maintain the major conservation practices needed in a Soil Conservation Plan. If this objective is to be realized the trainee must understand the major purposes of each practice established, and its value in terms of conservation of soil and water, and increased production. He must observe the establishment of these practices, and he must have experience in establishing the practices himself.
2. In order to be able to teach his own people how to do the many operations that he will learn in this training course, it is absolutely necessary that the trainee do them himself. He must drive a team or a tractor in building terraces and actually handle the various pieces of equipment used, such as strip scrapers, blades, V-drags, tree planters, single and two-way (reversible plows) farm equipment, and small tools (dibble) etc. He must get his hands dirty and full of calluses. For otherwise how is he going to demonstrate to other people what to do and how to do it.

| Jobs or Steps in Training | Training | |
|---|----------|---------|
| | Rec'd | Remarks |
| 1. Crop land - application and maintenance of the conservation cropping plan | : | : |
| a. Determining well in advance the fields, crops, and the year to start the conservation rotation | : | : |
| b. How to contact the farmer to get him to promise to start the conservation rotation with the close-growing crop | : | : |
| c. How to contact the farmer to get him to procure the seed and fertilizer to start the conservation rotation | : | : |
| d. Land preparation | : | : |
| e. Fertilizing and seeding | : | : |
| f. How to follow through the cycle of the plan of conservation rotation using the above procedure as needed | : | : |
| g. How to spread the conservation rotation to the remainder of the farm | : | : |
| 2. Establishing winter legumes and grasses for cover and soil improvement | : | : |
| 3. Establishing summer legumes and grasses for cover and soil improvement | : | : |
| 4. Establishment and management of perennial legumes and grasses | : | : |
| 5. Establishing small grains for cover, feed and seed | : | : |
| 6. Establishing and maintaining a contour strip crop system | : | : |
| 7. Establishing yield and time to harvest grass and legume seed | : | : |
| 8. How to harvest grass and legume seed by various methods | : | : |
| 9. Adjusting combines for harvesting conservation crops | : | : |
| 10. Cleaning and processing conservation seed | : | : |
| 11. Storing and caring for harvested seed of new conservation crops | : | : |
| 12. Sampling seed for analyses | : | : |

| Jobs or Steps in Training | Training | |
|---|----------|---------|
| | Rec'd | Remarks |
| 13. Determining seeding rate from seed analyses | : | : |
| 14. How to harvest kudzu and other perennial hay | : | : |
| 15. How to harvest kudzu crowns | : | : |
| 16. Storing and caring for kudzu crowns | : | : |
| 17. How to manage and use of winter legumes | : | : |
| 18. How to manage and use of summer legumes | : | : |
| 19. How to manage and use of non-legumes | : | : |
| 20. Managing and use of perennial grasses and legumes | : | : |
| 21. Managing and use of crop residue | : | : |
| 22. Establishing and maintaining vegetation in water disposal areas | : | : |
| 23. Establishing and maintaining a vegetative cover in individual terrace outlets | : | : |
| 24. Establishing and maintaining vegetation in drainage ditches | : | : |
| 25. Establishing and maintaining vegetation on farm pond dams and spillways | : | : |
| 26. Measuring distances by pacing and chaining | : | : |
| 27. Using level rod | : | : |
| 28. Using an engineer's level | : | : |
| 29. Using a hand level | : | : |
| 30. Running preliminary terrace lines as a basis for laying out a terrace system | : | : |
| 31. Locating key terraces | : | : |
| 32. Staking terraces, channels and waterways | : | : |
| 33. Simple drainage which does not require the use of topographic survey | : | : |
| a. Determine the need for drainage. Determine if adequate outlet is available. | : | : |
| b. Location of ditches. | : | : |
| c. Run profile of ditches | : | : |
| 1) Stake and take levels on each station and record field notes | : | : |
| 2) Plot profile and determine cuts | : | : |

| Jobs or Steps in Training | Training | |
|--|----------|---------|
| | Rec'd | Remarks |
| 33. | : | : |
| d. Construction | : | : |
| 1) With farm equipment | : | : |
| 2) With dynamite | : | : |
| e. Laying out simple random tile lines | : | : |
| 1) Location | : | : |
| 2) Laying out | : | : |
| 3) Trench construction | : | : |
| 4) Laying tile | : | : |
| 5) Priming | : | : |
| 6) Back filling | : | : |
| 7) Header walls | : | : |
| 34. Staking farm ponds | : | : |
| a. Water lines | : | : |
| b. Spillways | : | : |
| c. Dams | : | : |
| 35. Staking guide lines for contour furrows or ridges | : | : |
| 36. Constructing outlets and waterways | : | : |
| 37. Constructing terraces | : | : |
| 38. Checking terraces | : | : |
| 39. Opening terrace ends | : | : |
| 40. Laying out a system of rows with terraces | : | : |
| 41. Laying out a system of contour cultivation without terraces | : | : |
| 42. Using grid scale | : | : |
| 43. Devices and references | : | : |
| a. Regional Agronomy Field Letter and Handbooks | : | : |
| b. Farmer contacts | : | : |
| c. Farm plans of individual farmers | : | : |
| d. Land use capability tables | : | : |
| e. Conservation Surveys and land use capability maps of individual farms | : | : |
| f. Farmers' Bulletin 776 "Strip Cropping for Soil Conservation" | : | : |

| Jobs or Steps in Training | Training | |
|--|----------|---------|
| | Rec'd | Remarks |
| 43. | : | : |
| g. Farmers' Bulletin 1840 "Kudzu for Erosion Control" | : | : |
| h. Farmers' Bulletin 1852 "Lespedeza, Culture and Utilization" | : | : |
| i. USDA Circular No. 534 "Lespedeza Sericea and other Perennial Lespedezas for Forage and Soil Conservation" | : | : |
| j. Farmers' Bulletin 1758 "Cover Crops for Soil Conservation" | : | : |
| k. Engineering hand level | : | : |
| l. Engineer's dumpy level | : | : |
| m. Tape | : | : |
| n. Engineering Field Letters and Handbooks | : | : |
| o. Farmers' Bulletin 1789 "Terracing for Soil and Water Conservation" | : | : |
| p. Experiment Station reports | : | : |
| q. Terracing equipment | : | : |
| r. Establishing terracing system on cooperators' farms | : | : |
| s. Drainage equipment | : | : |
| t. Observation of equipment while constructing drains | : | : |
| u. Tile trenching machines | : | : |
| v. Farmers' Bulletin 1606 "Farm Drainage" | : | : |
| <u>Pasture and Meadows</u> | : | : |
| 1. Applying lime | : | : |
| 2. Preparation of land for permanent pasture | : | : |
| 3. Applying fertilizer to permanent pasture and perennials | : | : |
| 4. Inoculating legume seed | : | : |
| 5. Seeding grass and legume mixtures | : | : |
| 6. Sodding pastures | : | : |
| 7. Renovating old pastures | : | : |

| Jobs or Steps in Training | Training | |
|--|----------|---------|
| | Rec'd | Remarks |
| 8. Mowing pastures for | : | : |
| a. Controlling weeds | : | : |
| b. Improving grazing | : | : |
| 9. Controlling and distributing grazing for best results | : | : |
| 10. Maintenance of permanent pasture and perennials | : | : |
| 11. Constructing farm ponds | : | : |
| a. Pond site clearance | : | : |
| b. Core trench under dam | : | : |
| c. Deepening around edges of pond | : | : |
| d. Diversion ditches | : | : |
| e. Spillway construction | : | : |
| f. Dam construction | : | : |
| g. Vegetative treatment of dam and spillway | : | : |
| 12. Installing farm pond drains and water distributing facilities | : | : |
| 13. Checking farm ponds for completion | : | : |
| 14. Devices and references | : | : |
| a. Regional Agronomy Field Letters and Handbook | : | : |
| b. Farmers' Bulletin 1859 "Stockwater Development: Wells, Springs, and Ponds" | : | : |
| <u>Woodland</u> | : | : |
| 1. How to measure approximate board feet in standing trees with and without tree volume tables | : | : |
| 2. Methods of cutting in farm woods; thinning, improvement cuttings, harvest and cutting, in relation to perpetuation of the stand | : | : |
| 3. How to measure common forest products such as cordwood, pulpwood, board-feet, posts, etc. | : | : |
| 4. How to determine the age of standing trees | : | : |
| 5. How to determine approximate diameter growth of trees | : | : |
| 6. How to make best use of forest products in the farm business | : | : |
| 7. How to market forest products to best advantage | : | : |
| 8. Protecting farm woodlands from livestock damage | : | : |
| 9. Methods of fire control applicable to location | : | : |
| 10. Controlling insects and diseases in farm woodlands | : | : |
| 11. Methods of planting trees--when, how, tools to use, spacing, replanting | : | : |

| Jobs or Steps in Training | Training | |
|---|----------|---------|
| | Rec'd | Remarks |
| 12. Integration of farm woodlands with farming | : | : |
| 13. Windbreaks | : | : |
| 1) Values of | : | : |
| 2) Designs | : | : |
| 3) Arrangement | : | : |
| a. Trees | : | : |
| b. Shrubs | : | : |
| 14. Devices and references | : | : |
| a. Regional woodland management and planting hand- books | : | : |
| b. Article in Soil Conservation, Volume 2, Pages 28-29, 36-37, 40' | : | : |
| c. Chapter on "Forestry on Soil and Moisture Con- servation" in the Handbook prepared for use in the Americas | : | : |
| d. Land capability tables | : | : |
| e. Farm plans of individual farms | : | : |
| f. Any existing detailed planting plans | : | : |
| g. Woodland-management plans | : | : |
| <u>Wildlife</u> | : | : |
| 1. How to establish field borders | : | : |
| a. Shrubs | : | : |
| 1) Planted | : | : |
| 2) Native | : | : |
| b. Sericea | : | : |
| 2. Windbreaks (relation to wildlife) | : | : |
| 3. Environmental improvement to increase carrying capacity | : | : |
| 4. How to maintain field borders | : | : |
| 5. How to establish and maintain food areas | : | : |
| 6. Streambank protection (relation to fish and wildlife) | : | : |
| 7. Determining ponds suitable for fish management | : | : |
| 8. Measuring ponds for stocking and fertilizing needs | : | : |
| 9. Construction of farm ponds | : | : |
| 10. Applying fertilizer to fish ponds | : | : |
| 11. Requesting fish for stocking ponds | : | : |

| Jobs or Steps in Training | Training | |
|---|----------|---------|
| | Rec'd | Remarks |
| 12. Analyzing farm ponds and developing | : | : |
| | : | : |
| 13. Instructing farmers in pond management | : | : |
| | : | : |
| 14. Devices and references | : | : |
| a. Regional memoranda, handbooks, and job sheets | : | : |
| b. Farmers' Bulletins 1868, 1879, 1938 and Leaflet 188 | : | : |
| c. Farmer-District agreements | : | : |
| d. Land capability tables | : | : |
| e. Conservation surveys | : | : |
| | : | : |
| <u>Control and healing of gullies</u> | : | : |
| | : | : |
| 1. Training activities | : | : |
| a. Determine gully treatment needed | : | : |
| 1) Fencing | : | : |
| 2) Directing water | : | : |
| 3) Check dams | : | : |
| 4) Effect of prohibition of grazing | : | : |
| 5) Sodding or seeding | : | : |
| 6) Tree planting | : | : |
| b. Devices and references | : | : |
| 1) Farmers' Bulletin 1813 "Prevention and Control of Gullies" | : | : |
| | : | : |
| | : | : |

PROBLEM IV: Planning the Individual Farm or Ranch

A. Object and scope

1. To develop the ability of the trainee to make a complete coordinated program of soil and water conservation on a farm or ranch unit.
2. To learn of some procedures that are employed in the region in group planning and execution for speeding up and improving the conservation job.

B. Time to be devoted to the problem; as needed

1. Here again, it will be unlikely that a given period can be set up during which only this one problem will be considered. If unusual opportunities present themselves for training on another problem the supervisor should take advantage of this opportunity and provide this training.

| Jobs or Steps in Training | Training | |
|---|----------|---------|
| | Rec'd | Remarks |
| 1. Acquainting the trainee with the effectiveness of the various soil conservation practices | : | : |
| a. Training activities | : | : |
| 1) Study in the field the effectiveness of vegetation and mechanical control measures on all soils, erosion and slope | : | : |
| | : | : |

| Jobs or Steps in Training | Training | |
|--|----------|---------|
| | Rec'd | Remarks |
| 1. | : | : |
| a. Training activities | : | : |
| 2) Discuss practices with various personnel | : | : |
| b. Devices and references | : | : |
| 1) Work Plan | : | : |
| 2) Land capability tables for the district | : | : |
| 2. Examining the land capabilities on an individual farm or ranch | : | : |
| a. Activities | : | : |
| 1) Color land capabilities on the conservation survey | : | : |
| 2) Determine the optimum land use based on land capabilities | : | : |
| 3) Principles to be observed in contacting and dealing with individual farm owners and operators | : | : |
| 4) How to explain land use capabilities and economic requirements of the farm and their importance in developing the farm plan | : | : |
| a) Groups of applicants | : | : |
| b) Individual applicants | : | : |
| 5) Obtaining and recording economic information needed for farm planning | : | : |
| a) Crops grown | : | : |
| b) Anticipated crops | : | : |
| c) Livestock - Present and planned numbers | : | : |
| d) Food requirements | : | : |
| e) Wood and timber requirements | : | : |
| f) AAA allotments and soil building requirements | : | : |
| 6) How to assemble farm planning materials and equipment | : | : |
| 7) How to assist the farmer in planning the water disposal system to meet the needs of the farm and the land use requirements | : | : |
| 8) How to assist the farmer to determine the need for a farm pond | : | : |
| 9) How to assist the farmer to select the site for a farm pond | : | : |
| 10) How to assist the farmer in planning farm roads | : | : |
| 11) How to assist the farmer to plan the drainage system | : | : |
| 12) How to assist the farmer to plan the vegetation program on the crop land to meet the needs of the farm and the land use requirements | : | : |
| a) Selecting fields suitable to the main crops to be grown in the conservation rotations | : | : |
| b) Determining the supporting crops to be grown in the conservation rotations | : | : |

| Jobs or Steps in Training | Training | |
|--|----------|---------|
| | Rec'd | Remarks |
| 2. | : | : |
| a. Activities | : | : |
| 12) | : | : |
| c) Determining the sequence of crops in the rotations | : | : |
| d) Determining the field unit, crops and year for starting conservation rotations | : | : |
| 13) How to assist the farmer in planning strip cropping program | : | : |
| 14) How to assist the farmer to plan the grazing program to meet the farm needs and land use requirements | : | : |
| a) Site selection | : | : |
| 1) Permanent pastures and grass legume mixture | : | : |
| 2) Perennial legumes | : | : |
| 3) Location in relation to barn lot, water, other grazing areas | : | : |
| b) Determine the relative grazing value of different plants | : | : |
| c) Determine the approximate grazing capacity of pasture land and grazing periods | : | : |
| d) Plan for proper distribution of grazing | : | : |
| e) Amount and kind of seed | : | : |
| f) Amount and kind of fertilizer | : | : |
| g) Providing for water | : | : |
| 15) How to assist the farmer to plan the woodland management program to meet the needs of the farm and land use requirements | : | : |
| a) Appraisal of standing trees and the management of their best use | : | : |
| b) Determination of the sites that should be planted to trees | : | : |
| c) Selection of the best trees to be planted: on areas involved | : | : |
| d) Scheduling the years in which planting is to be done | : | : |
| e) Planning fire lanes, roads, and fences | : | : |
| 16) How to assist the farmer to plan the wildlife areas to meet the needs of the farm and land use requirements | : | : |
| a) Border strips | : | : |
| b) Food areas | : | : |
| c) Fish pond management | : | : |
| 17) How to assist the farmer in roadside erosion control program to meet the needs of the farm | : | : |
| 18) How to assist the farmer to determine the alternate possibilities for land use and treatment to meet the needs of the farm | : | : |
| 19) How to assist the farmer in developing the plan field by field | : | : |
| 20) How to make the necessary adjustments to make a balanced farm plan | : | : |

| Jobs or Steps in Training | Training | |
|---|----------|---------|
| | Rec'd | Remarks |
| 2. | : | : |
| a. Activities | : | : |
| 21) How to write the farm plan | : | : |
| a) Make land use map showing fields by numbers and use | : | : |
| b) Give acreage in each field | : | : |
| c) Write narrative part of farm plan | : | : |
| d) Fill out summary sheet | : | : |
| e) Attach legal sheet | : | : |
| 22) Assemble the district farm plan | : | : |
| 23) Check the district farm plan for accuracy and completeness | : | : |
| 24) Discuss the final plan with the farmer and make final adjustments with the farmer | : | : |
| 25) Procuring signature of the farmer | : | : |
| 26) Procuring signature of district supervisors | : | : |
| b. Devices and references | : | : |
| 1) Conservation survey of the farm | : | : |
| 2) Land capability tables of the district | : | : |
| 3) Miscellaneous Publication 293 "Soil Conservation District for Erosion Control" | : | : |
| <u>Range Management and Range Planning</u> | : | : |
| 1. Learn importance of | : | : |
| a. Range lands and their management | : | : |
| 1) Management, the essential conservation measure: | : | : |
| 2) Planner-Operator relations | : | : |
| 3) How to identify plant life on the range | : | : |
| 4) Major plant associations | : | : |
| 5) Range livestock husbandry | : | : |
| b. How to find the facts concerning a ranch | : | : |
| 1) Ranch layout and units of management | : | : |
| 2) Amount and kind of forage | : | : |
| a) Brief history of range surveys | : | : |
| b) Field procedures for making a range survey | : | : |
| c) Density estimates | : | : |
| d) Proper use factors | : | : |
| e) Forage acre requirement | : | : |
| 3) Determining condition of the range by | : | : |
| a) Classifying range condition in the field | : | : |
| b) Plant vigor | : | : |
| 4) Factors other than vegetation | : | : |
| 5) Livestock numbers, supplemental forage and feed supplies | : | : |
| 6) Present system of grazing and management methods | : | : |

| Jobs or Steps in Training | Training | |
|--|----------|---------|
| | Rec'd | Remarks |
| 1. | : | : |
| c. How to analyze the facts | : | : |
| 1) Analysis of range condition data | : | : |
| 2) Relative productivity of the site | : | : |
| 3) Adequacy of plant cover to control erosion | : | : |
| 4) Determination of proper season of use | : | : |
| 5) Kind and class of livestock to be grazed | : | : |
| 6) Adequacy of existing range improvements | : | : |
| 7) Estimated forage production, balance of present use between pastures, between range forage and other feed supplies and between wild and domestic animals | : | : |
| 8) Adequacy of resources for a sound enterprise | : | : |
| d. How to develop a range plan | : | : |
| 1) Recommended rate of stocking for range areas and desirable time of use for range, improved pasture, hay land, etc. | : | : |
| a) Herd composition | : | : |
| 2) Systems of grazing | : | : |
| 3) Supplementary and complementary feeds | : | : |
| a) Animal unit conversion factors | : | : |
| b) Relative values of various supplementary feeds | : | : |
| c) Feed value of irrigated pastures | : | : |
| d) Perennial dry-land pastures | : | : |
| e) Feed value of temporary pastures | : | : |
| f) Feed value of cropland aftermath | : | : |
| g) Livestock rations | : | : |
| h) Mineral supplements | : | : |
| i) Protein supplements | : | : |
| 4) Range improvements and other measures needed to facilitate the grazing system adopted | : | : |
| 5) Range improvement by reseeding and control of noxious plants | : | : |
| 6) Supplemental measures on range land | : | : |
| e. How to apply a range plan | : | : |
| 1) Forage production, utilization checks and general range analysis with Operator | : | : |
| a) Recommended average minimum stubble height | : | : |
| 2) Adjustments in Management | : | : |
| 3) Adequacy of range conservation practices including water spreading, water develop- ments, salting, pasture fences, etc. | : | : |
| a) Determining initial allowable use by means of range condition classes | : | : |

| Jobs or Steps in Training | Training | |
|---|----------|---------|
| | Rec'd | Remarks |
| <u>Irrigation</u> | : | : |
| 1. Learn the major factors affecting feasibility of irrigation | : | : |
| a. Climatic factors such as | : | : |
| 1) Precipitation | : | : |
| 2) First free season | : | : |
| 3) Temperature - evaporation | : | : |
| b. Land factors such as | : | : |
| 1) Location and acreage of irrigable lands | : | : |
| 2) Topography | : | : |
| 3) General soil characteristics - depths | : | : |
| 4) Fertility, salinity, texture, structure | : | : |
| 2. Learn ways in which water supplies are developed | : | : |
| a. Diversion of surface waters | : | : |
| b. Diversion of ground waters | : | : |
| c. Storage | : | : |
| d. Quality of water supplies | : | : |
| 3. Conveyance of water to the farm | : | : |
| a. Diversion dams and appurtenant works | : | : |
| b. Water measurement | : | : |
| c. Water losses in canals and methods of prevention | : | : |
| d. Control and removal of silt | : | : |
| e. Conduits | : | : |
| f. Methods of delivery of water to the farm | : | : |
| g. Methods of charging for water | : | : |
| h. Operation and maintenance system | : | : |
| 4. Farm irrigation systems | : | : |
| a. Functional requirements | : | : |
| b. Control structures | : | : |
| c. Ditches - lined or unlined | : | : |
| d. Pipe lines | : | : |
| e. Farm flumes | : | : |
| f. Small farm pumping plants | : | : |
| g. Overnight or short period storage | : | : |
| h. Control of waste and storm water | : | : |
| i. Operation and maintenance of systems | : | : |
| 5. Study soils and soil moisture | : | : |
| a. Soil terms | : | : |
| b. Effect of soil texture and structure on plant growth and root development - permeability | : | : |

| Jobs or Steps in Training | Training | |
|--|----------|---------|
| | Rec'd | Remarks |
| 5. | : | : |
| c. Suitability of soils to irrigation agriculture | : | : |
| d. Movement of water in soils | : | : |
| e. Soil moisture terms | : | : |
| f. How to determine depth of water to apply for an irrigation | : | : |
| g. Learn practical guide for water application | : | : |
| 6. Learn use and effect of irrigation water | : | : |
| a. Field duty of irrigation water | : | : |
| b. Factors determining the efficiency of use of irrigation water | : | : |
| c. Determination of irrigation intervals | : | : |
| d. Excess salts present in soil | : | : |
| 7. Methods of irrigation | : | : |
| a. Border or strip - flooding | : | : |
| b. Wild flooding method | : | : |
| c. Basins | : | : |
| d. Corrugations | : | : |
| e. Row irrigations with and without borders | : | : |
| f. Gradient furrows | : | : |
| g. Sub-irrigation | : | : |
| h. Sprinkling | : | : |
| 8. Efficiency in application of irrigation water | : | : |
| a. Advantages of efficient application | : | : |
| b. Requirements for efficiency application | : | : |
| c. Determination of amount of water applied at an irrigation and uniformity of penetration | : | : |
| 9. Irrigation methods and field layouts | : | : |
| a. Objectives to be sought in planning fields | : | : |
| b. Factors affecting layout of field - soils - topography - slope - farm management practices and crops, roads, fences, field boundaries | : | : |
| c. Irrigation grade and head of water | : | : |
| d. Lengths of runs - direction of runs | : | : |
| e. Size, shape of basins, borders or benches | : | : |
| 10. Land preparation | : | : |
| a. Subjugation (new lands, clearing and leveling) | : | : |
| b. Land leveling | : | : |
| 1) Purposes and benefits | : | : |
| 2) Types - six classifications | : | : |
| c. Proper type to recommend based on soil type - depth of soil, amount of water, etc. | : | : |

| Jobs or Steps in Training | Training | |
|--|----------|---------|
| | Rec'd | Remarks |
| 11. Cropping practices | : | : |
| a. Crop rotation - purpose and factors limiting use of various crops | : | : |
| b. Fertility maintenance and improvement; use of commercial fertilizers, barnyard manure | : | : |
| c. Green manure crops and factors limiting their use | : | : |
| 12. Irrigation Organizations | : | : |
| a. Irrigation districts | : | : |
| b. Mutual irrigation companies | : | : |
| c. Commercial irrigation companies | : | : |
| d. Old community ditches | : | : |
| e. Informally organized groups | : | : |
| f. Conservancy districts | : | : |

PROBLEM V: Carrying out a program of information and relations

A. Object and scope

1. To develop the ability of the trainee to carry on a program of information and relations. The major emphasis should be placed at the work unit level, with only an acquaintance being developed with phases beyond this.

| Jobs or Steps in Training | Training | |
|---|----------|---------|
| | Rec'd | Remarks |
| 1. The preparation of a district news column | : | : |
| a. Activities | : | : |
| 1) Read and clip district news columns | : | : |
| 2) Discuss with local editors, farmers and supervisors, the value of news columns | : | : |
| 3) Write small parts of the column | : | : |
| b. References and devices | : | : |
| 1) Writing conservation news | : | : |
| 2) File of district news columns | : | : |
| 2. Writing conservation news stories | : | : |
| a. Activities | : | : |
| 1) Studying news stories | : | : |
| 2) Discussion with information specialists | : | : |
| 3) Writing district news stories | : | : |
| 4) Read available information of writing news stories | : | : |
| b. References | : | : |
| 1) Daily newspapers | : | : |
| 2) Clipping file | : | : |
| 3) Writing conservation news | : | : |

| | | Training | |
|----|--|----------|---------|
| | | Rec'd | Remarks |
| 3. | Writing articles on conservation | : | : |
| | a. Activities | : | : |
| | 1) Discussion with information specialists | : | : |
| | 2) Review of sample articles | : | : |
| | 3) Writing articles for home country and translating them into English | : | : |
| | b. References | : | : |
| | 1) Bulletins or text books on soil and water conservation methods | : | : |
| | 2) Articles in agricultural and technical journals | : | : |
| 4. | Taking effective conservation pictures (display, publication and record) | : | : |
| | a. Activities | : | : |
| | 1) Studying the camera and films | : | : |
| | 2) Discussion with regional photographers | : | : |
| | 3) Examining poor and good examples of photography | : | : |
| | 4) Taking pictures of good subjects at proper exposures | : | : |
| | b. References and devices | : | : |
| | 1) Camera, films and manufacturer's directions | : | : |
| | 2) Selected photos from regional files | : | : |
| 5. | Displaying pictures and other visual aids | : | : |
| | a. Activities | : | : |
| | 1) Select material for size and appropriations | : | : |
| | 2) Assist work unit personnel, show slides at farm meetings and other occasions | : | : |
| | 3) Assist in the preparation, setting up and dismantling of an exhibit | : | : |
| | 4) Discuss with work unit leader how to display charts during an educational meeting | : | : |
| | b. References and devices | : | : |
| | 1) Projection machine and screen | : | : |
| | 2) Kodachrome and black and white slides | : | : |
| | 3) available charts and display material | : | : |
| 6. | Maintaining relationships with educational institutions, civic, and other organizations | : | : |
| | a. Activities | : | : |
| | 1) Visit schools and colleges with the purpose of determining the place of soil conservation in the curriculum | : | : |

| Jobs or Steps in Training | Training | |
|---|----------|---------|
| | Rec'd | Remarks |
| 6. | : | : |
| a. Activities | : | : |
| 2) Accompany work unit leader or district conservationist when they are called on to talk before such groups | : | : |
| 3) Prepare and deliver speeches to such groups on invitation | : | : |
| b. References | : | : |
| 1) College catalogues | : | : |
| 2) Yearly programs of clubs | : | : |
| 7. Selecting appropriate books, bulletins on soil and water conservation | : | : |
| a. Activities | : | : |
| 1) Examine work unit file copies and discuss the value of each with work unit leader | : | : |
| 2) Request lists of available copies of regional and state publications at the Regional Office and State Offices | : | : |
| 3) Secure departmental list of publications and secure those recommended by immediate supervisor | : | : |
| 4) Visit college and other book stores accompanied by regular Soil Conservation Service employee and make purchases desired and recommended | : | : |

PROBLEM VI: Studying the techniques and services of Soil Conservation Nurseries

| Jobs or Steps in Training | Training | |
|---|----------|---------|
| | Rec'd | Remarks |
| A. Training Activities | : | : |
| 1. Determine the purpose and place of the nurseries in the Soil Conservation program | : | : |
| 2. Become familiar with the different types of plant materials produced for soil conservation practices | : | : |
| 3. Study methods and equipment used in collecting, processing, and storing hardwood herbaceous seeds | : | : |
| 4. Study the digging, grading and storing of nursery stock | : | : |

| Jobs or Steps in Training | Training | |
|---|----------|---------|
| | Rec'd | Remarks |
| 5. Observe seed-bed and general nursery planting and cultivation operations, including tools used | : | : |
| | : | : |
| 6. Observe distribution of planting stock from nursery to farmer cooperator | : | : |
| | : | : |
| 7. Observe the importance of grass seed production as a part of the nursery program and the techniques employed | : | : |
| | : | : |
| 8. Note the assembly and study of new and promising species as a means of constantly improving the vegetative materials used in erosion | : | : |
| | : | : |
| | : | : |

PROBLEM VII: Study of the technique of Soil Conservation Experiment Station

| Jobs or Steps in Training | Training | |
|---|----------|---------|
| | Rec'd | Remarks |
| A. Training Activities | : | : |
| | : | : |
| 1. Determine need for experimental study | : | : |
| a) Should answer a vital need | : | : |
| b) Should be within budgetary, personnel, and equipment limitations | : | : |
| c) Should have demonstrational as well as research value | : | : |
| | : | : |
| 2. Find out what has been done before by making search of literature | : | : |
| | : | : |
| 3. Study research methodology--advantages and disadvantages of each | : | : |
| a) Laboratory studies | : | : |
| b) Small plots | : | : |
| c) Large plots | : | : |
| d) Field trials | : | : |
| | : | : |
| 4. Choose the method best adapted for the problem | : | : |
| | : | : |
| 5. Develop working plan--use model from station files | : | : |
| | : | : |
| | : | : |
| 6. Determine location of the experimental work on the station farm. Need for uniformity of site conditions, necessity for treatment, replication, randomization, within the blocks, check plots, etc. | : | : |
| | : | : |
| | : | : |

| Jobs or Steps in Training | Training | |
|--|----------|---------|
| | Rec'd | Remarks |
| 7. Study record taking | : | : |
| a) Type of records to secure | : | : |
| b) Frequency of record taking (automatic recorders, etc.) | : | : |
| c) Accuracy of record taking and precision needed | : | : |
| 8. Determine period of operation necessary before experimental results are reliable | : | : |
| 9. Study records and data | : | : |
| a) Forms and record sheets | : | : |
| b) Summary and analysis, statistical treatment | : | : |
| c) Conclusions and recommendations | : | : |
| 10. Make field-scale tests of practices which appear to be promising from small-plot results | : | : |
| 11. Write up results of experimentation for public release | : | : |
| 12. Study how to make compilation of directories and indexes of literature on related agricultural subjects | : | : |
| 13. Make special studies of technical equipment, instruments, and machinery which have been developed for soil conservation research | : | : |
| a) Climatological | : | : |
| b) Soil studies | : | : |
| c) Stream gaging | : | : |
| d) Measuring runoff, soil loss | : | : |
| e) Making vegetative-stand counts, cover-value reading, etc. | : | : |
| f) Stubble mulch and subsurface tillage | : | : |

